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Perinatal services were provided at Walson Army Hospital until June 1978 when this capability was withdrawn and resources were distributed elsewhere. The labor and delivery suites, newborn nursery, and post partum ward were all closed. Pregnant family members were referred to local civilian facilities under CHAMPUS. Active duty females were given supplemental care referrals to local obstetricians or were provided maternity care at the Philadelphia Naval Regional Medical Center. After more obstetrics trained physicians came on active duty, perinatal care was considered for reactivation at Army facilities with a projected workload sufficient to justify its existence. This study analyzes the various cost factors associated with the delivery of perinatal care at Walson. After extensive research, it determined that the government would save money by re-establishing in house perinatal services.

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A STUDY OF PERINATAL SERVICES AT WALSON ARMY HOSPITAL FORT DIX, NEW JERSEY

A Problem Solving Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Hospital Administration

By

Major John D. Dunn, MSC

August 1980

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I. INTRODUCTION

Prior to June 1978, perinatal services were provided at Walson Army Hospital. However, concurrent with an anticipated shortfall in the number of trained obstetric specialists coming on active duty, the decision was made by the obstetrics consultant that the obstetrics capability of the hospital would be withdrawn and the available resources distributed elsewhere. In June 1978, the labor and delivery suites, newborn nursery, and post-partum ward were all closed for active use.

Beginning in late 1977, non-availability statements were provided to authorized beneficiaries of CHAMPUS in order that all those beneficiaries might seek maternity care from civilian sources in the surrounding communities. Arrangements were made with the Philadelphia Navy Regional Medical Center to provide maternity care to Army active duty personnel assigned to Fort Dix. At the same time, the Air Force medical department at McGuire Air Force Base elected to provide pregnant, active duty servicemembers with non-availability statements for maternity care allowing those individuals to seek maternity care from civilian sources rather than forcing them to seek care from the OB-GYN Service at the PNRMC. During the period from June 1978

to November 1979, the above program was in effect for delivery of maternity care. In November of 1979, Department of the Army changed its policy regarding the provision of maternity care to active duty personnel. The change in policy authorized those active duty females who were pregnant to seek maternity care from civilian sources - in those instances when the service member resided a distance of greater than thirty miles from the nearest uniform services medical treatment facility which possesses obstetric capabilities. An overwhelming majority of those pregnant active duty females reside on the Fort Dix installation which is thirty miles from the Philadelphia Navy Regional Medical Center. This change in policy has resulted in virtually all diagnoses of pregnancy at Fort Dix and McGuire Air Force Base being referred to the civilian community for maternity care.

Within the next twelve months, the projected input of obstetrics trained physicians on active duty is expected to relieve the dramatic shortage in this specialty area. As a result, perinatal care is currently being considered for reactivation at Army facilities with a projected workload sufficient to justify its existence.

Statement of the Problem

The problem was to analyze the cost factors associated with the delivery of perinatal care at Walson Army Hospital and to make recommendations on the feasibility of providing perinatal care.

Criteria

Perinatal services offered by Walson Army Hospital should conform to professional standards for perinatal units as delineated by the American College of Obstetrics and Gynecology (ACOG) Committee on Professional Standards. In this regard minimum workload levels should satisfy the following criteria:

(1) 500 births per delivery room

(2) 250 births per labor room

(3) 40 births per maternity bed.[1]

In addition, basic professional standards should be achieved to insure an acceptable quality of care level. The ACOG Committee on Professional Standards recommends:

(1) 24 hour nursing coverage of the labor and delivery area when patients are in labor.

(2) The ability to prepare for an emergency cesarean section in a period of 50 minutes or less.

(3) Continual observation of postpartum patients during the first hour after delivery.

(4) Twenty-four (24) hour anesthesiologist availability.

(5) Nurse anesthetist availability in the institution on a twenty-four (24) hour basis.

(6) Emergency blood availability.

(7) Fibrinogen availability.

(8) Complete examination of the new-born infant

within the first twenty-four(24) hours of life.

(9) Ability to perform exchange transfusion within four (4) hours.[2]

It is desirable that any proposed plan of action for Walson Army Hospital satisfy requirements of the Perinatal Plan for Southern New Jersey as published by the Southern New Jersey Health Systems Agency, Inc. This plan is based on the premise that there should be a regional approach to perinatal care. The hospital is limited in its ability to participate in a cooperative system of maternal and perinatal health care by reason of its restricted base of beneficiaries. However to the extent possible, the hospital should plan services in accordance with HSA planning guidelines.

A primary criterion for determining the appropriate level of care which should be made available through the obstetrical service is the total number of annual deliveries. The State of New Jersey adopts the "Levels of Care Criteria for the Regionalization of Maternal and Neonatal Services in New Jersey" report prepared by the New Jersey State Department of Health Maternal and Infant Care Services (MICS) Committee for purposes of planning, certification of need, and designation of perinatal services. From this report, the following standards and general criteria apply:

1. Utilization: Applicants for a certificate of need or designation as a Level I or Level II Perinatal

Unit or as a Level III Perinatal Center shall perform the following minimal numbers of deliveries on an annual basis:

Level I - at least 1,000 deliveries annually

Level II - at least 1,500 deliveries annually

Level III - at least 2,000 deliveries annually

In addition to the minimal number of deliveries required for designation as a Level III center, additional criteria based upon the regional delivery population are applied. These criteria do not apply to Walson Army Hospital. Waivers from the minimum number of deliveries can apply to certificate of need or designation for a Level I or Level II perinatal unit.

2. Size: The minimum size for an obstetric unit for all three levels of care is twenty (20) beds.

3. Function:

a. Level I - A Level I perinatal unit provides services primarily for uncomplicated maternity and newborn patients. The unit is characterized by normal newborn services and physically separated facilities for labor and delivery. There must be Cesarean section capability on short notice on a twenty-four (24) hour basis, anesthesia service on call on a twenty-four (24) hour basis, and the capability to provide immediate resuscitation of the newborn. The Level I perinatal unit also provides supportive care for infants returned from Level II or III

units when their acute problems are resolved.

b. Level II - In addition to providing services for uncomplicated patients, a Level II perinatal unit provides intermediate care services for the majority of women and newborns with complications. More specifically, a Level II perinatal unit is able to:

(1) Provide care for newborns with respiratory problems up to the point when prolonged ventilatory assistance is required,and

(2) Provide care for patients with other complications up to the point at which they need to be transferred to the care of a sub-specialist not available at the Level II hospital.[3]

c. Level III - The Level III Regional Perinatal Center provides care for normal patients and also for complicated fetal, neonatal and maternal cases which require more intensive care than can be provided in a Level II perinatal unit. Services to be provided include: twenty-four hour fetal scalp and neonatal arterial blood gas analysis; ultrasonic and radioisotope capabilities; the ability to continuously monitor neonatal blood pressure, heart rate and respiration; and the capability to maintain respiration on a long-term basis. The Level III center also would have a permanent monitor in the delivery/ Cesarean section room for monitoring capability until the moment of delivery and a neonatal intensive care unit.[4]

Limitations

The problem solving options are limited only by law in regards to the referral to civilian sources. To provide services in-house, options are available which can be used in various combinations to provide required resources.

II. DISCUSSION

The basis for projecting costs for operating a perinatal unit stem from a projection of the number of maternity episodes expected. The historical review of pregnancy diagnoses document maternity cases in authorized beneficiaries referred to civilian sources under CHAMPUS, maternity cases in active duty females referred to civilian sources under supplemental care, and maternity cases in active duty females referred to another uniform services military treatment facility (PNRMC).

During the sixteen month period from January 1979 to April 1980, a total of 1496 non-availability statements for maternity care under CHAMPUS were issued to eligible beneficiaries. This quantity is an average of 93.5 maternity cases per month. An annual projection from this volume is 1122 births per year. During the same time period, an additional 243 CHAMPUS nonavailability statements were issued for gynecology consultations from civilian sources and seventeen CHAMPUS non-availability statements were issued for other surgical procedures, usually therapeutic abortion or tubal ligation. Appendix A presents the historical analysis of CHAMPUS non-availability referral statements.

During the same time period, January 1979 to April 1980, 121 cases of pregnancy have been diagnosed in active duty Army personnel. Of this number, twenty-five have been authorized to seek maternity care from civilian sources. The balance of the service members have been referred for care to the Philadelphia Naval Regional Medical Center. The preponderance of the supplemental care non-availability statements have been issued since November 1979 when Army policy was changed to allow those pregnant servicemembers who reside further than thirty miles from a uniform services medical treatment facility the option to select closer civilian care. Twenty of the twenty-five total have been issued since November.

Active duty females in the Air Force have been given authorization to seek civilian care from the time that maternity care was discontinued at Walson Army Hospital. During the sixteen month period from January 1979 - to April 1980, sixty-three airwomen have been authorized civilian maternity care. No airwomen from McGuire Air Force Base have delivered at the Philadelphia Navy Regional Medical Center.

During the sixteen month period from January 1978 to April 1980, a combined total of 1680 females were diagnosed as being pregnant. This total results in a monthly average of 105 pregnancy diagnoses. Projected over twelve months, Walson Army Hospital could expect

an annual delivery workload of 1260 births provided that there is no change in population served and the current birth rate.

The most current cost data published by the Statistics Branch, Office of Civilian Health and Medical Program of the Uniform Services reflects claims processed during the period July 1, 1978 to June 30, 1979. Extracts from the annual statistical reports are presented in Appendix C. Cost figures for the period July 1, 1978 - June 30, 1979 demonstrate a total cost to the government. At the time of reporting, costs for all claims submitted during the period are 90 percent complete.[5] Average total government cost per maternity episode averaged $2007.20.

Since the close of the reporting period, the cost for professional care has increased by 10.8 percent. The hospital services component has increased by 11.6 percent. Therefore the current government cost of maternity care per delivery episode averages $2235.13.[6]

A survey of complete maternity cases billed to Walson Army Hospital under supplemental care procedures was conducted. Of the sixteen completed billings during the previous twelve months, cost for hospital services averaged $1485. Additionally, costs for professional services provided by the attending physician averaged $717. Total cost of maternity care for active duty servicemembers averaged $2202.

Total annual outlay for CHAMPUS beneficiaries based on no change in population served and present birth rate is projected to be $2,507,670. In addition, supplemental health care costs for active duty personnel are projected to be $191,574. The total government cash outlay for civilian maternity care is projected to be $2,699,244 annually.

Resource Requirements

In order to establish a perinatal unit at Walson Army Hospital, manpower requirements are necessary to staff four basic activities. Primary would be the physicians required to establish an OB-GYN Service. The perinatal unit itself would necessitate staffing the labor and delivery suites, the newborn nursey, and the post-partum ward.

The mission of the OB-GYN Service would be to provide dianostic service and patient care and treatment in both the surgical specialities of obstetrics and gynecology including clinical and consultation service. Staffing requirements for the OB-GYN Service are calculated to total six staff OB-GYN physicians. This requirement has been determined by application of Yardstick workload requirements, DA Pamplet 570-557, and by local appraisal. The requirement is based on workload of 105 deliveries per month, 2250 clinic visits per month, fifty surgical procedures per month, and daily ward rounds. Staffing

requirements for the OB-GYN Service are presented at Appendix D. Manpower costs for satisfying those requirements are presented at Appendix E.

Based on a projection of 1260 births annually, monthly workload for the Labor and Delivery Nursing Unit would be 105 deliveries. The applicable yardstick, Table 557-8243, DA Pamplet 570-557, authorizes a total of ten personnel to perform expected work. Local appraisal of the operation based on the projected labor and delivery workload and the services and facilities to be established identifies two additional manpower requirements. Total staffing requirements for the unit are presented in Appendix F. Manpower costs for the unit are calculated in Appendix G.

Twelve hundred sixty annual births with a four day length of stay will result in 5040 patient days. From this, the expected average daily census in the newborn nursery would be fourteen. Of this total, three to four infants who are within the first twenty-four hours of life would demand continual close supervision by the professional staff. Applying the yardstick from Table 557-82.44, DA Pamplet 570-557, a total manpower requirement of fourteen would be recognized. This level of staffing would be sufficient to provide the required level of care without additional local appraisal. Staffing requirements

are presented in Appendix H and manpower cost in Appendix I.

Beds occupied in the post partum ward would also be fourteen beds for post partum cases. Additionally ante-partum patients with complications would receive nursing care on the ward when hospitalized. "Clean" gynecological surgery patients would also be hospitalized on the ward. With an estimated gynecological surgery workload of sixty cases per month and an average length of stay of 4.5 days, average daily number of beds occupied would be increased by nine to twenty-three. The yardstick code, Table 557-82.42, DA Pamplet 570-557, indicates manpower requirements of fifteen personnel to provide appropriate care. Local appraisal indicates that another authorization, to a total of sixteen personnel, would be required to accomplish the indicated workload. Staffing requirements are presented in Appendix J. Manpower costs are presented in Appendix K.

Supply Costs

Supply costs can best be identified in relation to the total number of MCCU's for the perinatal unit. Total MCCU's for the unit is projected to be 35280 [(1260 x 10) admissions + (1260 x 10) live births + (5040 + 5040) patient days]. Average supply costs per MCCU average 14.75 for obstetrical services/newborn nursery. Approximate annual supply costs would be $520,380.

Housekeeping

Housekeeping services are provided to Walson Army Hospital by a commercial janitorial firm on an annual contract. Most housekeeping functions are computed by square feet of floor space to be cleaned. Additionally, special housekeeping requirements such as cleaning delivery rooms after each use and maintaining the newborn nursery are computed over and above square footage requirements. Housekeeping costs for labor and delivery unit, newborn nursery, and the post partum ward would average $ 6,300 per month. This computes to an annual housekeeping cost of $75,600.

Ancillary Services

Ancillary services incur costs based on average cost of the service. Laboratory service costs are incurred at the average rate per test. Pharmacy costs are incurred per MCCU. Projected laboratory costs are $ 182,650 per annum; pharmacy cost would total $96,475.

Linen and Sterile Supplies

Linen costs are calculated on the basis of pounds issued. A rough estimate of linen usage based on number of occupied beds can be calculated by projecting ward requirements in relation to similar surgical wards in the facility. Annual linen requirements will total 64,250. Sterile supply requirements are minimal based on the

projected use of disposable packs and the capability to sterilize linens on the unit. Sterile pack requirements from the CMS are projected to be 18,591.

Utilities

Utility costs are allocated on a square footage basis. Utility costs to the perinatal unit are calculated based on the unit's percent of total spare allocation in the facility. Projected annual costs for utilities totals $141,620.

III. CONCLUSIONS

The combined costs for manpower, supplies, housekeeping, ancillary services, linen and sterile supplies, and utilities totals $2,029,652. When compared to the cost the government for CHAMPUS and supplemental care, appreciable cost savings can be realized. Instrumental to the analysis is containment of costs in the reestablishment of the existing facility. While the existing facility and equipment has been surveyed and evaluated to be adequate for operating as a Level I/Level II perinatal unit, action to upgrade facility and/or the equipment will negatively impact on the cost savings of providing in-house perinatal services.

Based on the cost analysis, it is feasible to provide in-house perinatal services. It is recommended that the command initiate action to obtain Major Command approval and support in re-establishing in-house capabilities.

APPENDIX A

CHAMPUS

Nonavailability Statements Issued
January 1979 - April 1980
Army, Air Force, and Navy

	Obstetrics	Gynecology	Other
January 1979	96	16	
February 1979	97	11	
March 1979	97	22	
April 1979	64	5	
May 1979	97	18	1
June 1979	84	16	2
July 1979	84	23	
August 1979	92	16	
September 1979	93	23	2
October 1979	112	23	
November 1979	86	10	1
December 1979	77	14	1
January 1980	105	15	2
February 1980	91	9	
March 1980	91	8	2
April 1980	110	14	6

APPENDIX B

SUPPLEMENTAL CARE

Nonavailability Statements Issued
January 1979 - April 1980
Army, Air Force, and Navy

		Obstetrics
January - December 1979	A	12
January - April 1980	A	13

APPENDIX C

OCHAMPUS Annual Report

Deliveries

Hospital Services	7/1/78-6/30/79	1/1/77-12/31/77
Number of Admissions	1,224	717
Total Hospital Days	5,396	3,124
Average Length of Stay	4.4	4.4
Average Daily Patient Load	14.8	8.6
Total Government Costs	$1,550,427.00	$ 793,054.00
Average Patient Cost per Patient Day	$ 287.33	$ 253.86
Average Government Cost per Admission	$ 1,266.69	$ 1,106.07
Professional Services		
Total Government Costs	$ 683,047.00	$ 316,577.00
Average Government Cost per Admission	$ 558.04	$ 441.53

APPENDIX D

Staffing Requirements

OB-GYN Service

1 LTC	Chief
3 MAJ	Obstetric GYN
2 CPT	Obstetric GYN

APPENDIX E

Manpower Costs

OB-GYN Service

	Base Cost	+	Bonus + Prof Pay	Unit Cost	Total Cost
1 LTC	35,543		17,200	52,743	52,743
3 MAJ	29,489		15,200	44,689	134,067
2 CPT	24,161		13,200	37,361	74,722
					$ 261,532

APPENDIX F

Required Staffing

Labor and Delivery Nursing Unit

1 CPT (ANC)	Clinical Head Nurse
1 LT (ANC)	Clinical Staff Nurse
1 E6 (91C)	Clinical Specialist
2 E5 (91C)	Clinical Specialist
2 E4 (91B)	Ward Specialist
1 GS9	Clinical Nurse
2 GS7	Clinical Nurse
2 GS4	Nursing Assistant

APPENDIX G

Manpower Cost

Labor and Delivery Nursing Unit

1 CPT	24,161	$ 24,161
1 1LT	18,591	18,591
1 E6	14,562	14,562
2 E5	12,279	24,558
2 E4	10,443	20,886
1 GS9	18,739 + 9% (20,426)	20,426
2 GS7	15,317 + 9% (16,696)	33,392
2 GS4	11,054 + 9% (12,049)	24,098
		$180,674

APPENDIX H

Required Staffing

Newborn Nursery

1 MAJ (ANC)	Clinical Head Nurse
2 CPT (ANC)	Clinical Staff Nurse
1 LT (ANC)	Clinical Staff Nurse
1 E7 (91C)	Wardmaster
2 E5 (91B)	Senior Ward Specialist
2 E4 (91B)	Ward Specialist
2 E3 (91B)	Ward Attendant
2 GS7	Clinical Nurse
2 GS4	Nursing Assistant

APPENDIX I

Manpower Cost

Newborn Nursery

Staffing Requirements	Unit Cost	Total Cost
1 MAJ	29,489	29,489
2 CPT	24,161	48,322
1 LT	18,591	18,591
1 E7	17,304	17,304
2 E5	12,279	24,558
2 E4	10,443	20,886
2 E3	9,300	18,600
2 GS7	16,696	33,392
2 GS4	12,049	24,098
	Total	$ 235,240

APPENDIX J

Staffing Requirements

Post - Partum Ward

1	MAJ (ANC)	Clinical Head Nurse
2	CPT (ANC)	Clinical Staff Nurse
1	E 7 (91C)	Wardmaster
3	E 5 (91C)	Senior Clinical Specialist
1	E 4 (71L)	Ward Reports Clerk
3	E 4 (91B)	Ward Specialist
1	GS9	Clinical Nurse
2	GS7	Clinical Nurse
2	GS4	Nursing Assistant
16		

APPENDIX K

Manpower Cost

Post Partum Ward

Staffing Requirements		Unit Cost	Total Cost
1	MAJ	29,489	29,489
2	CPT	24,161	48,322
1	E-7	17,304	17,304
3	E-5	12,279	36,837
4	E-4	10,443	41,772
1	GS9	20,426	20,426
2	GS7	16,696	33,392
2	GS4	12,049	24,098
16			$ 251,640

FOOTNOTES

FOOTNOTES

[1]Edwin M. Gold, "Public Health Aspects of Future OB-GYN Services," Obstetrics and Gynecology 41(March 1973): 463.

[2]Ibid, pp. 463-464.

[3]Perinatal Plan for Southern New Jersey (October 1, 1979): 31.

[4]Ibid, p. 40.

[5]Interview with Mr. Warren Shaw, Statistics Branch, Office of Civilian Health and Medical Program of the Uniformed Services, 7 May 1980.

[6]Interview with Mr. John Gof, CHAMPUS Intermediary, Blue Cross of Rhode Island, 8 May 1980.

[7]DA Pamplet 570-557

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